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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS : LU, M. et al.
SERIAL NO. : 09/931,948
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FOR : TRANSPARENT ELECTRODES
GROUP ART UNIT : 2879
EXAMINER : Harper, Holly R.

ASSISTANT COMMISSIONER OF PATENTS
Washington, DC 20231

DECLARATION UNDER 37 C.F.R. § 1.132

SIR:

I, Min-Hao Michael Lu, hereby declare and state as follows:

1. I have reviewed the specification, figures and claims of United States Patent Application 09/931,948, and I am an inventor of the claimed subject matter.

2. I was responsible for designing, performing and / or overseeing the experiments described in the specification at pages 22 - 27 and figures 10 - 11.

3. I believe a device that includes the specific combination of:

- (a) an electron injection layer;
- (b) an organic buffer layer disposed over the electron injection layer;
- (c) a conducting layer disposed over the organic buffer layer;

(d) a transparent conductive oxide layer disposed over the conducting layer.

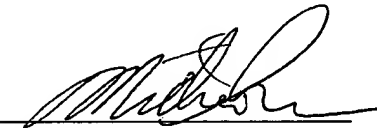
provides an unexpectedly superior results compared to devices including one or more, but not all, of the individual elements (a) through (d).

4. More specifically, the results described in Figure 10 and paragraph 78 of the specification compare “example 1,” which has elements (a) through (c) from paragraph 3 above, with “example 2,” which includes elements (a) through (d) above. Prior to the disclosure of Application 09/931,948, one of skill in the art would NOT expect the device of example 2 to exhibit a higher current density at various voltages than the device of example 1, because example 2 includes all of the layers of example 1, plus an extra ITO layer on top. Current traveling through the device of example 2 must therefore cross all of the same layers and interfaces as current traveling through example 1. However, as shown in Figure 10, the device of example 2 has a current density as a function of voltage that is unexpectedly and significantly higher than the current density of the device of example 1. It should be noted that the y-axis of Figure 10 is logarithmic, and the difference between plot 1010 (example 2) and 1020 (example 1) is about a factor of 2 or greater in many places, which is significant.

5. As described in the specification at paragraph 79, it is my belief that the unexpectedly superior results are due to an interaction between the various layers required by the claims.

6. I further declare that all statements made herein of my knowledge are true and that all statements made on information and belief are believed to be true; and further that the undersigned acknowledges that any false statements and the like so made are punishable by fine or imprisonment or both under §1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of any patent that issues from U.S. Application Serial No. 09/931,948.

Date: 11/8/2004


Min-Hao Michael Lu